



Published weekly for employees of Lawrence Livermore National Laboratory

Friday, November 21, 2003

Vol. 28, No. 47

Atoms for Peace 50 years later



MARCIA JOHNSON/IBIS

Associate Director at Large Bruce Tarter, Susan Eisenhower, Leonard Weiss, Ira Chernus and Michael Wheeler participate in the Atoms for Peace Plus 50 conference held recently at the Lab.

By Carol Gerich

SPECIAL TO NEWSLINE

Susan Eisenhower, chairman of the Eisenhower Institute and granddaughter of the 34th President, Dwight David Eisenhower, mixed per-

Panelists spend two days discussing 'atomic dilemma'

By Don Johnston

NEWSLINE STAFF WRITER

In opening the discussion concluding the "Atoms for Peace" conference at the Laboratory last week, Paul Longworth, deputy NNSA administrator, referred back to the challenge laid out by President Dwight Eisenhower in the

sonal stories and political perspectives in her keynote talk at last week's Atoms for Peace Plus 50 conference.

She opened her reflections with her vivid

See **EISENHOWER**, page 7



FRANK NUNEZ/IBIS

Paul Longworth

See **LONGSWORTH**, page 7

UC Board of Regents OK creating board of directors to oversee national labs

The University of California Board of Regents approved in concept the creation of a National Security Laboratories Board of Directors Thursday to strengthen UC oversight of the national weapons labs.

UC Regents voiced strong support for the new board proposed by Adm. Bob Foley, UC vice president for Laboratory Management, though Regents said details of the board's structure and lines of authority would need to be further defined at a future meeting.

Laboratory Director Michael Anastasio, who delivered a state of the Lab report to the Regents, also supports the creation of the new board. "I welcome the additional expertise the board would provide," he said.

Foley explained that distinct from the UC President's Council on the National Labs, the new board would provide "more focused" expertise and be more "hands-on" in its oversight of the

Regents approve lawsuit settlement

On Wednesday, the UC Board of Regents approved a tentative settlement agreement in Jennings v. Regents, a class action lawsuit alleging gender disparities in pay and promotion.

The terms of the settlement must still be approved by Alameda County Superior Court. Once that occurs, all affected class members will be contacted and information on the specifics of the settlement will be available.

See **STATE OF LAB**, page 5

Mara reflects on Teller's legacy

By Don Johnston

NEWSLINE STAFF WRITER

Reflecting on the life of the late Dr. Edward Teller and the 50-year legacy of science and technology at LLNL helps to provide guidance on the path to the future, Deputy Director for Operations Glenn Mara told the Valley Study Group recently.

"Our founders, Ernest Lawrence and Edward Teller, imprinted on us the Lab's genetic code — a code that has stood the test of time for those first 50 years and is critical to addressing technical challenges," Mara said. "In short, the Laboratory has been up to meeting every one of those grand challenges."

Mara recapped the events of the

See **MARA**, page 4

Laboratory scientists tout chem/bio detection work

By Steve Wampler

NEWSLINE STAFF WRITER

Three Laboratory researchers believe that recent progress in technology development to counter biological and chemical terrorism has been "unprecedented."

In a review article published Friday in the journal *Science*, the LLNL scientists note that while important challenges remain, new detection systems show increased sensitivity, greater automation and fewer false alarms.

"Ongoing challenges include approaches to

respond even more rapidly, more cost-effectively and with the greatest likelihood of minimizing health risk and collateral damage," they write.

The review paper was written by Pat Fitch, leader of the Laboratory's Chemical and Biological National Security Program; Ellen Raber, head of the Environmental Protection Department; and Dennis Imbro, associate program leader of the Chemical and Biological National Security Program.

Technologies for coun-

See **SCIENCE**, page 7



Pat Fitch says technology such as BASIS is improving detection.

Workforce reviews to begin next month

The next round of workforce reviews will begin in December, Director Michael Anastasio has announced.

Ensuring the capability of the current and future workforce continues to be a high priority for the Laboratory, Anastasio

explained, requiring focused and regular attention to the development of workforce strategies and management practices at both the institutional and directorate levels.

See **REVIEW**, page 8



Observing technology

— Page 3



Livestock gifts help needy

— Page 5



Raptor rapture

— Page 8



LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Friday
28

The **Laboratory's Discovery Center**, formerly the Visitors Center, will be open to the public today from 1-4 p.m. Located at East Gate Drive and Greenville Road, the Discovery Center provides visitors with a window into state-of-the-art research programs, computational capabilities and experimental tools. No badging is required. For further information, call Linda Lucchetti, 2-5815.

Sunday
30

Open Enrollment ends today, Nov. 30. For the first time, all Open Enrollment changes will be made online. For employees who do not have access to a computer or who need help making changes, computers are available in the Benefits Office, Bldg. 571, room 1205, 8 a.m.- 5 p.m. All Open Enrollment changes become effective Jan. 1.

UP
&
COMING

The 2004 kickoff workshop on **"How to Win an R&D100 Award"** will be held, Tuesday, Dec. 2, at 10 a.m. in the newly remodeled Bldg. 361 auditorium.

Potential submitters are strongly encouraged to attend. For more information, contact Lisa Chartrand, 2-2297.

...

The Valley Dance Theatre presents **"The Nutcracker,"** on Dec. 20, 21 and 23 with music provided by the Livermore-Amador Symphony and Harmony Crossroads Chorus. This will be the only full-length Nutcracker production in the Bay Area with both live symphony orchestra and choir. The performances will be Saturday, Dec. 20, at 2 and 7 p.m.; Sunday, Dec. 21, at 2 and 7 p.m.; and Tuesday, Dec. 23, at 7 p.m. at the Livermore High School Theatre, 600 Maple St., Livermore. Ground floor, reserved seat tickets are \$15 for adults and \$13 for students and seniors. Balcony tickets are not reserved and cost is \$12 for adults and \$10 for students and seniors. For information, group rates and tickets call 243-0927.

...

A **Fidelity retirement counselor** will be available Dec. 4 -5 to assist employees. If you would like to set up a one-on-one consultation with your Fidelity representative, call 800-642-7131. When calling, be sure to specify that you are an LLNL employee.

...

Employees enrolled in **UC Care or Core during 2002** are reminded that all claims must be submitted to Aetna UC Healthcare no later than Dec. 31.

...

Health Net has announced that effective Jan. 1, it has contracted with Livermore area physicians as part of the Affinity Medical Group/Tri-Valley. Health Net has also contracted with ValleyCare Health Systems effective Dec. 1. For a list of participating physicians, call Health Net's customer service at 1-800-640-2004.

IN MEMORIAM

Josephine Gattorna Bailey

Josephine Gattorna Bailey, a Livermore native, died Nov. 13. She was 86.

Bailey was born Feb. 23, 1917, in Livermore. A graduate of St. Michael's School and Livermore High School, she also attended Heald Business College. She worked in the personnel department at the Laboratory for 10 years, until retiring in 1984. She also worked as an assistant buyer for Lieska, a men's clothing store in San Francisco.

Bailey was a member of the St. Michael's Mothers Club and St. Michael's Golden Friends, and was an avid gardener.

She is survived by her daughters, Susan Numair of San Leandro and Cathy Wolfe of Livermore; numerous nieces and nephews; and five grandchildren. She was preceded in death by her sisters, Lena Schenone, Augusta Cernusco, Marie Corsiglia and Antoinette Morris.

Visitation is from 1 to 9 p.m. today at Callaghan Mortuary, 3833 East Ave., Livermore. Rosary will follow at 7 p.m. Services will be held at 10 a.m. Saturday at St. Michael's Catholic Church, 458 Maple St., Livermore. Burial will be in St. Michael's Cemetery.

Irv Heald

Irv Heald died on Tuesday, Nov. 18, following a courageous battle with lung cancer. He was 74.

He was a veteran of the Korean War, and worked at the Laboratory from 1957 until he retired in 1990. He spent most of his 33-year career in the Nuclear Test Division (now DTED) of the Mechanical Engineering Department, first working in the non-destructive test area and later, at the Nevada Test Site. He left the Lab for two years and worked as superintendent of operations at Concannon Vineyards.

He is survived by his wife of 49 years, Evelyn; and two sons, Michael of Pleasanton and Vincent of San Diego. He is also survived by his daughter-in-law Christina of Pleasanton, mother-in-law Caroline Favero of Livermore, his brother-in-law Anthony Favero and his wife Laura Schwyhart of Half Moon Bay.

Services will be held on Monday, Nov. 24, at 11 a.m. at St. Michael's Church in Livermore.

Donations in his name may be made to the Dublin Chapter of the American Cancer Society, c/o Donation Center, 7000 Village Parkway, Dublin 94568.

Walter R. Sooy

Walter R. Sooy, a 22-year Pleasanton resident, died Nov. 12. He was 70.

Sooy was born Dec. 28, 1932, in Boston. He attended MIT and USC and earned his doctorate in physics from UCLA.

He began his professional career at Hughes Aircraft Co. and went on to work at the U.S. Naval Research Laboratory. He most recently worked as chief scientist for the laser and environmental programs at the Lab. He retired in 1993. After retirement, he became an independent consultant in military technology, lasers and electro-optics.

His hobbies included woodworking, gardening, playing piano, and he was a lifelong student of history and a mentor to many young scientists.

He is survived by his wife, Margaret Misegades; his son, Devin R. Sooy of Mt. Pleasant, S.C.; his stepson Charles Sellers; his daughter, Marlisa M. Sooy of James Island, S.C.; his stepdaughters Virginia Bitikofer and her husband, Mark, of Willoughby, Ohio, Ellen Honeycutt and her husband, James, of Woodstock, Ga., and Paula Sellers of Austin, Texas; his former wife, Joan M. Sooy of James Island, S.C.; his sister Berenice Archambeault and her husband, George, of Waynesboro, Va.; and seven grandchildren.

A celebration of life will be held at his home Dec. 28.

Memorial donations may be sent to Hope Hospice, 6500 Dublin Blvd., No. 100, Dublin, 94568.

Newsline takes a break for the holiday week

Due to the Thanksgiving holiday next week, *Newsline* will not be published. The next issue of *Newsline* will appear Dec. 5.

Classified ads will appear next week on the Web only. If you'd like them to appear in the Dec. 5 issue of *Newsline*, you will need to re-submit them.

The next Technical Meeting calendar will appear in the Dec. 5 issue. Deadline for submissions is Wednesday, Dec. 3.

Newsline will be published on Monday, Nov. 24, only, and will resume regularly scheduled distribution the week of Dec. 1.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

Contacts:

Media & Communications manager: Lynda Seaver, 3-3103

Newsline editor: Don Johnston, 3-4902

Contributing writers: Bob Hirschfeld, 2-2379; David Schwoegler, 2-6900; Anne M. Stark, 2-9799; Stephen Wampler, 3-3107; Gordon Yano, 3-3117. For an extended list of Lab beats and contacts, see <http://www.llnl.gov/llnl/06news/NewsMedia/contact.html>

Photographer: Jacqueline McBride

Designer: Julie Korhummel, 2-9709

Distribution: Mail Services at LLNL

Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808

Telephone: (925) 422-4599; Fax: (925) 422-9291

e-mail: newsline@llnl.gov or newsline@llnl.gov

Web site: <http://www.llnl.gov/PAO/>

AROUND THE LAB



Search for planets yields shockwave breakthrough

By Anne M. Stark

NEWSLINE STAFF WRITER

It started as search for planets, but has expanded into a system that can be applied in the fields of broadband high-resolution spectroscopy and the precision angular measurements of stars.

The externally dispersed interferometer (EDI) uses a small and inexpensive interferometer with an external grating spectrograph for precision Doppler velocity measurements and high-resolution spectroscopy.

The idea started out as a 1998 Laboratory Directed Research and Development pilot project put together by physicist David Erskine, of the Physics and Advanced Technologies Directorate, using white-light velocity interferometry techniques from H Division's two-stage gas guns and combining it with astronomical spectroscopy.

The motion of a planet around a star causes a Doppler shift in the wavelength of the light. Light passing through the periodic fringes of an interferometer (and then into the spectrograph) creates a moiré pattern. The moiré pattern shifts transversely, proportional to the Doppler velocity. Spectrograph distortions can prevent a precision measurement of the Doppler shift, but by using the EDI, the small Doppler shifts of exoplanets can be measured.

Erskine's group conducted bench-top testing in the Laboratory and then eventually tested it on starlight at the Lick Observatory in 1999. "This instrument truly helped reduce the distortion of starlight and is much easier to transport to any observatory," Erskine said.

While taking a year off for a sabbatical, Erskine worked on the theoretical aspect of the EDI and began to think of other applications for the device. Soon, he realized it could be used to boost the time resolution and stability of streak cameras recording high-speed phenomena, such as in shockwave physics experiments conduct-



David Erskine in front of the 10-meter-diameter South African Large Telescope (SALT) under construction. The telescope designers are interested in using Erskine's EDI technique to boost the performance of their spectrograph.

ed at the National Ignition Facility. The time resolution boosting is analogous to a two-times spectral resolution boost he and his UC Berkeley collaborators have recently demonstrated at the Lick Observatory spectrograph.

"The moiré effect is a heterodyning effect

that shifts narrow details to become broad moiré patterns," Erskine said. "These better survive the blurring of the spectrograph slit."

Using his custom software, the moiré patterns can be analyzed to reverse the heterodyning and reconstruct the spectrum. "An analogous thing can be done in the time domain for NIF experiments," Erskine said. The spectral resolution boosting is described in the Aug. 1, 2003 issue of *Astrophysical Journal Letters*.

Working with a new LDRD that started Oct. 1, Erskine is intent on demonstrating a ten times resolution boosting effect, using a modified interferometer with multiple delays. Preliminary data he obtained in mid-October measuring the iodine spectrum indicated an eight-times resolution boost. He described his data and technique to a recent astronomy conference in South Africa where scientists there are interested in his method to boost the performance of a 10-meter telescope facility under construction, the Southern African Large Telescope (SALT).

He said in addition to the Doppler planet search, EDI applications include:

- High-resolution spectroscopy over a broad bandwidth with an unusually compact instrument.
- Boosting the resolution and stability performance of existing spectrograph facilities, in a simple retrofittable manner. "Like a pair of eyeglasses," he said, "we can inexpensively improve the performance of any type of grating spectrograph if one is willing to do some post-processing."
- Exoplanet search using stellar angular positions. Precision measurement of angular differences using a long baseline interferometer that is unusually insensitive to mechanical/optical drifts and therefore lower in cost.
- Improved interferogram analysis software that can accept irregular and unknown phase steps typical of real-world measurements (mechanical vibrations, air convections, etc.).

BRIEFLY

Engineering 2003 Holiday Card Fund

Engineering has a long history of helping the less fortunate in the community. This year, employees have the opportunity to aid low-income and homebound seniors through the Engineering 2003 Holiday Card Fund. To support the fund, simply donate the money otherwise spent on greeting cards to other employees. The donation will be forwarded to the Senior Services Center of Livermore, which will use the money to purchase food certificates and baskets for needy seniors. Donations may be made in cash or by check (payable to the Senior Services Center) and are due by Friday, Dec. 12.

For more information, contact Diane Martz, martz3@llnl.gov, 3-1981; Kim Hegman, hegman1@llnl.gov, 4-4866; or Debbie Leal, leal1@llnl.gov, 2-9121.

Occupational illness resource center

A Department of Energy-Department of Labor Traveling Resource Center will return to the East Bay Jan. 20-21 and March 23-24. Representatives will be on hand to assist individuals with claims under the Energy Employees Occupational Illness Compensation Program Act. Workers who need help filling out claim forms

may schedule appointments at the Traveling Resource Center by calling toll-free, (866) 697-0841, or drop in during office hours, 8:30 a.m. to 6 p.m., at the Four Points Hotel by Sheraton, 5115 Hopyard Road, Pleasanton.

The program helps DOE contractor employees apply for state workers' compensation benefits, if it is determined by an independent physician's panel that the worker sustained an illness caused by exposure to a toxic substance at a DOE facility. Several facilities in the Bay Area have been designated by DOE as locations for prospective worker claims: Lawrence Berkeley Lab, Lawrence Livermore and Stanford's Linear Accelerator Center.

Meeting Maker upgrade this weekend

Meeting Maker, the LLNL standard calendaring program, will be upgraded to version 7.5 this weekend beginning late Friday, Nov. 21. The transition from the current version to 7.5 is expected to be smooth and will occur over the weekend, resulting in very little downtime for users. All data (e.g., meetings, contacts, and to-do lists) will be preserved during the upgrade.

This new version of Meeting Maker offers an overall performance improvement plus new features, including:

- Macintosh OS X compatibility
- Improved support for Palm OS handhelds
- More reliable reconnections

The upgrade will be rolled out in an automated fashion, with most of the process occurring behind the

scenes. Any necessary detailed instructions for Meeting Maker users will be e-mailed to them directly.

The Meeting Maker Upgrade Project team tested the new version of Meeting Maker with Lab standard software (e.g., Microsoft Office, Eudora and Netscape). To date, no compatibility issues have been discovered. More detailed upgrade information is available at <http://4help.llnl.gov/mm/upgrade.html>.

Open LabNet maintains the Meeting Maker server. 4Help and local Meeting Maker administrators support individual accounts. Questions concerning the upgrade may be directed to 4help@llnl.gov or call 4-HELP(4-4357).

Self-help drill postponed

The sitewide evacuation (self-help) drill originally scheduled for the week of Nov. 17 has been postponed. The drill is scheduled to take place the week of Dec. 1.

The drill is designed to ensure employees at both the Livermore site and Site 300 demonstrate knowledge of their local evacuation and muster procedures. The drill will only consist of facility evacuation, muster and reporting. For more information on the drill, contact Sue Broadway, 4-3759.



NEWS YOU CAN USE

MARA

Continued from page 1

last year and highlighted program, research, and operational accomplishments. “2003 has been a challenging year and the future promises more of the same, including decisions on the continued UC leadership of LLNL, LANL and LBNL,” he said.

He was pleased to discuss UC’s new leadership with the selection of Robert Dynes as UC president and the appointment of Adm. Robert Foley as vice president for Laboratory management. “The teaming of the two comes at a crucial time,” Mara said. “We’re fortunate to have their leadership, experience and knowledge of the laboratories.”

But, despite the uncertainty surrounding the contract, the Laboratory has continued to meet its programmatic obligations and major milestones, he said. “Livermore has an excellent record of accomplishment and is receiving the recognition it richly deserves.”

Mara called it a “banner year for the Stockpile Stewardship Program” and its accomplishments, including the start up of new facilities and new levels of collaboration between LLNL and LANL.

Laboratory scientists and engineers have conducted “hydrotests” at LANL’s Dual Axis Radiography Hydrotest (DARHT) facility and LANL will be using the Contained Firing Facility at Livermore’s Site 300 in the future, he said. “This kind of collaboration is what it takes to do stockpile stewardship. In an era of constrained budgets, we cannot afford duplicate complex facilities and we must take full advantage of all the available resources.”

The efforts to extend the life of weapons in the enduring stockpile achieved major success during the year, and the JASPER gas gun at the Nevada Test Site conducted its first plutonium experiment, Mara said.

The Stockpile Stewardship Conference held in Omaha, Neb., last summer addressed the future of the nation’s nuclear deterrence and it’s clear “the stockpile is changing and will continue to change,” he said.

“LLNL is playing a key role in providing the right scientific and technical information that is so critical to the national leadership as policy and direction are determined to define the national security posture.”

A cornerstone of stockpile stewardship, the National Ignition Facility (NIF) also achieved major milestones. Mara called recent achievements of the world’s most powerful laser “heroic,” notably bringing online the first four beamlines to achieve NIF early light (NEL).

NIF is a scientific and technical “tour de force,” he said. “This is a world class team effort. NIF has begun its first experiments even as it continues the complex task of laser commissioning. The demonstration of NEL is dramatic and convincing evidence that NIF will perform as advertised and meet the stewardship program needs.”

Another tool vital to stockpile stewardship, high performance computing, is also meeting its objectives, including advances in supercomputers: ASCI Purple, designed to be a 100-teraflop computer is scheduled for early 2004, Mara said, adding that “progress” in the construction of the Terascale Simulation Facility (TSF), which will house these incredible machines, reflects an emphasis throughout the complex on project management excellence. “TSF is on schedule and on budget.”

Turning to domestic security, Mara said: “Homeland security is the fastest growing area at the Laboratory. Work with the newly created U.S. Department of Homeland Security represents an “evolving enterprise for the Lab and one that requires extensive agency and industrial partnering.”

But the Laboratory’s diverse program experience, including Cooperative Research and Development Agreements, or CRADAs, has helped prepare the labs for this challenge and the Laboratory has been able to provide valuable leadership and technical expertise to the new department, Mara said. “Livermore has been playing a key role in defining the future of homeland security.”

Livermore’s ability to support the nation’s homeland security effort reflects continued emphasis on

long-range science and technology planning and investments, he said. “One of the things that has characterized Livermore is an effort to remain agile and invest in the future in a way that has paid major dividends. Making those investments is critical to the future of the Laboratory over the next 50 years.”

Mara also highlighted the continuous operational improvements under way at Livermore in security, business and finance, facilities, safety, environmental operations and community outreach.

With the director’s appointment of David Leary as head of Safeguards and Security, significant focus has been placed on continuing security improvements, including the East Avenue closure. The Laboratory has also taken a leadership role by providing expertise in business and finance to the other national labs, Mara said.

The Environmental Management Program has added new capabilities and is working to improve overall efficiency, and Mara was pleased to announce that the Decontamination and Waste Treatment Facility began operations on Sept. 23.

The recent mailing to 60,000 Tri-Valley residents of the Emergency Response Guide, the annual HOME Campaign, and the opening of the Edward Teller Education Center all represent the Laboratory’s growing commitment in partnering for the success of the local community. Another significant example of community partnering is the recent formation of the emergency dispatch service agreement consolidating emergency communications for LLNL and five local agencies.

Mara showcased the various scientific and technical awards received over the past year — both at the individual level and for teaming efforts, such as the R&D100 Awards.

To close the evening presentation, Mara saluted Teller with a short video clip taken from the recent commemoration ceremony. Mara reflected on Teller’s exemplary career and the relevance of his contributions to the Laboratory and the world. “Dr. Teller’s dedication and spirit are engrained in our Laboratory culture and will help guide us in our future service to the nation.”

Technical Meeting Calendar

Friday
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INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

“The Role of Radiation in Making Meteoritic Organics and False Biomarkers,” by Max Bernstein, NASA

Ames Research Center. Noon, Bldg. 319, room 205. All attendees must be badged. Contact: Wil van Breugel, 2-7195, or Josie Morgado, 3-4188.

CHEMISTRY & MATERIALS SCIENCE

“DNA Methylation: An Achilles Heel of Bacterial Pathogens,” by Michael Mahan, Molecular, Cellular, and Developmental Biology, UC Santa Barbara. 10 a.m., Bldg. 132S, room 1784. Foreign Nationals may attend if approved security plan is on file, which includes Bldg. 132S. Refreshments will be served. Contact: Dave Eaglesham, 2-0486, or Julie Sedillo, 3-3506.

CENTER FOR APPLIED SCIENTIFIC COMPUTING

“Aerobreakup in Rarefied Supersonic Gas Flows,” by T.G. Theofanous, Center for Risk Studies and Safety, UC Santa Barbara. 10:30 a.m., Bldg. 451, White Room. The seminar is sponsored jointly by the Defense & Nuclear Technologies Directorate, CAFDA, the Institute for Scientific Computing Research, the Nonproliferation, Arms Control and International Security Directorate and CASC. Contact: Rose McCallen, 3-0958, or Helen Magann, 2-5229

Monday
24

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

“Techniques for Processing Large Data Streams,” by Johannes Gehrke, Cornell University. 9 a.m.,

Bldg. 451, room 1025 (property protection area). Contact: Tina Eliassi-Rad (CASC), 4-3557, or Leslie Bills, 3-8927.

Tuesday
2

INDUSTRIAL PARTNERSHIPS & COMMERCIALIZATION

The 2004 LLNL kickoff workshop on “How to Win an R&D100 Award.” 10 a.m., Bldg. 361 auditorium. Contact: Lisa Chartrand, 2-2297.

Wednesday
3

ENERGY & ENVIRONMENT

“The Coming Energy Winter and the Future of Fusion,” by Brendan McNamara, Leabrook Computing / Energy-Gap Bournemouth. 10:30

a.m., Bldg. 543 auditorium. Contact: Helen Magann, 2-5229.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

“The Magneto-hydrodynamic Richtmyer-Meshkov Instability,” by Ravi Samtaney, Princeton Plasma Physics Laboratory. 10 a.m., Bldg. 451, room 1025 (property protection area). Contact: Carol Woodward, (CASC) 4-6013, or Leslie Bills 3-8927.

Thursday
4

ASCI INSTITUTE FOR TERASCALE SIMULATION

“Challenges for Computing and Information Technology in the Twenty First Century,” by William

A. Wulf, National Academy of Engineering, 10:30 a.m., Bldg. 123 auditorium (property protection area). Contact: Jim McGraw, 2-0541, or Linda Becker, 3-0421.

Friday
5

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

“Probing Galaxy Formation with Gamma Rays,” by Joel Primack, UC Santa Cruz. Noon, Bldg. 319,

room 205. Contact: Wil van Breugel, 2-7195, or Josie Morgado, 2-7181.

PHYSICS & ADVANCED TECHNOLOGIES

“Temporal Signal Processing and Its Applications to A/D Conversion, Waveform Generation and Spectroscopy,” by Bahram Jalali, UCLA. 11:30 a.m., Trailer 1885, room 1012 (badge required). Contact: Corey Bennett, 2-9394.

The deadline for the next Technical Meeting Calendar is noon, Wednesday, Dec. 3

Send your input to tmc-submit@llnl.gov.



The cows come HOME through gifts of livestock

Alane Alcorn

IBIS

Forget an ordinary puppy or a kitten as that special holiday gift. Give a llama to a family in Bolivia, or a water buffalo to a teenager in Nepal, Cambodia or the Philippines. How about a heifer — that’s right, a young cow — purchased with your best wishes in one of 125 countries worldwide?

Not cozy with unfamiliar livestock? Don’t worry, you don’t have to touch a lead rope or a stock trailer. All you need is a HOME (Helping Other More Effectively) Campaign pledge form or access to the E-Pledge screen. You, too, can deliver a nanny goat, beehives, a flock of geese, indeed an entire ark of productive animals halfway around the globe just by signing your name.

Heifer International does all the heavy hauling. You just have to sign your name or click the mouse button a few times. Certainly Heifer is one of the HOME Campaign’s best-kept secrets, but you can learn livestock gifting the easy way by pointing your browser to <http://www.heifer.org/> for a gander at all the live-gift opportunities.

Heifer’s mission is assisting families and village co-ops to learn ecologically sound sustainable agriculture practices. That goal is rooted in the vision of one Midwestern farmer who believed he could change the world for the better, and then went out and did it.

The Heifer Website explains, “In the 1930s, a civil war raged in Spain. Dan West, a Midwestern farmer and Church of the Brethren youth worker, ladled out cups of milk to hungry children on both sides of the conflict. It struck him that what these families needed was ‘not a cup, but a cow.’ ”

“He asked his friends back home to donate heifers (a heifer is a young cow that has not yet borne a calf) so hungry families could feed themselves. In return, they could help another family become self-reliant by passing on to them one of their gift animal’s female calves. The idea of giving families a source of food rather than short-term relief caught on and has continued for more than 50 years.”

Since its first gifts in 1944, Heifer has helped more than 4.5 million small-scale farm families in 125 countries on five continents and in 38 US states. That’s a whole lot of heifers, as well as sheep, goats, pigs and more

exotic animals. Additionally, Heifer “trainers” teach local farmers and herders how to reintroduce indigenous animals that provide the food, fur, fiber or feathers to move families and villages from poverty to self-sufficiency.

Through the HOME Campaign, you can help Heifer help others give the gift of sustainable agriculture. This year alone, Heifer is providing 28 different kinds of animals — including yaks and red worms in addition to all those mentioned earlier — and numerous varieties of trees to families in 49 countries and in 23 states.

More than 40,000 people a year visit Heifer’s three learning centers in Massachusetts, Arkansas, and in Ceres, Calif. Learning centers model organic gardening and demonstrate sustainable agricultural practices for the developed world, as well as alternative marketing methods for small farmers.

Need directions to the Ceres Center? It’s located at 3906 E. Don Pedro Road. Drop in or call Sandy Groll at (209) 537-8996 for the particulars. Just remember to wear jeans and closed shoes or boots...you are going to a farm, after all.



Heifer International works to end hunger and poverty by providing appropriate livestock, training and related services to small-scale farmers and communi-

Home Campaign contributions as of Nov. 21: \$817,000

Directorate	Total Employees	Employee Contributions	Amount Donated	Percent Participation
Directors Office	195	41	\$24,418	21.0%
Energy & Environment	328	84	\$26,532	25.6%
Computation	1040	233	\$110,798	22.4%
Chemistry & Materials Science	532	96	\$57,799	18.0%
Safety & Environmental Protection	769	189	\$71,499	24.6%
Physics & Advanced Technologies	385	94	\$46,126	24.4%
Defense & Nuclear Technologies	422	94	\$53,050	22.3%
Lab Services	1,465	385	\$98,458	26.3%
Safeguards & Security	376	28	\$8,805	7.4%
National Ignition Facility Programs	209	51	\$22,761	24.4%
Engineering	2,227	431	\$184,805	19.4%
Chief Financial Officer	101	39	\$12,220	38.6%
Nonproliferation, Arms Control & International Security	268	63	\$33,448	23.5%
Admin. & Human Resources	235	128	\$31,175	54.5%
Biology & Biotechnology Research	260	25	\$9,946	9.6%
Johnson Controls	46	46	\$21,015	N/ A
Retirees	53	53	\$3,750	N/ A
Others	1	1	\$5	N/ A
Total Participation	8,912	2,081	\$817,000	23.4%

STATE OF LAB

Continued from page 1

weapons labs.

“Accountability is the issue,” he said. “The idea is to hold people accountable for their performance.”

“We want to take the expertise on the council and make it more focused than just general oversight,” Foley said. “We want to build the strongest possible team should UC decide to compete for the contract to manage the national labs. The board would be seen as the strong commitment of UC to managing the laboratories.”

Bob Kuckuck, former Lab deputy director for Operations and now a senior adviser to UC, added that the idea was to put together “the strongest possible team for making changes in the next two years, whether UC competes or not.”

After his report to the Regents, Foley noted that other national labs, such as Argonne, Oak Ridge, the Jet Propulsion Laboratory and Sandia, all have some kind of board of directors.

The proposed National Security Laboratories Board of Directors would operate through a series of committees in such areas as science and technology,

operations and administration, audit and ethics, and executive performance and compensation. Committees would include experts beyond the members of the board of directors. In addition, some members of the President’s Council would transition to committees of the new board.

“The science and technology at the labs has been very good,” Foley said. “We need to beef up leadership and management.”

In his state of the the Lab report to the UC Regents, Anastasio provided updates on Laboratory stockpile stewardship, homeland security programs as well as other science and technology developments that “we’ve been able to apply to other national challenges.”

Stockpile stewardship has been a very successful program,” he said, noting that for the last eight years the weapons lab directors have been able to certify the weapons remaining in the nation’s nuclear stockpile. “We’ve developed a more robust understanding of stockpile stewardship because of the capabilities we’ve developed as a UC lab.”

Anastasio described new stockpile stewardship facilities including the JASPER gas gun at the Nevada

Test Site, one of “the innovative technologies to understand plutonium,” and gave a progress report on the National Ignition Facility. “With NIF there’s a good story to tell,” he said, explaining that four of the laser’s 192 beams are operational. “Not only did we show they work, we were able to show they meet all of the criteria for full operation...Scientists want to start conducting experiments using the laser.”

He also discussed how the Laboratory continues “to drive the computing industry” by developing high-performance computing capabilities that allow programs to “use simulation to advance science.”

In addition, Anastasio described how research in weapons effects evolved into expertise in bioscience, spawning the human genome project and spinning off technologies that have benefited homeland security and public health.

Anastasio concluded his presentation with a discussion of some of the challenges faced by the Laboratory, such as an aging workforce. “We’re working to bring in the next generation of scientists and put them in a position to move the Lab into the future,” he said.

“I look forward in the next 50 years, as in the past 50, to a promising future in partnership with UC.”



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2002 - -Toyota Tacoma Doublecab, V6,AT,AC, 20K miles,Silver,2WD TRD Offroad Pkg,Alarm w/ remote start,Tow Pkg.,Mint cond.,KBB at \$21.4K, asking \$20.5K OBO. 209-483-9563

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EISENHOWER

Continued from page 1

impression of meeting Edward Teller — “the man with the bushy eyebrows” — when she was 8. She then shared the time that her grandfather reached an impasse in talks in the United States with Nikita Khrushchev during the height of the Cold War. So, she related, he invited the young grandchildren to meet the Soviet leader at the family farm at Gettysburg, hoping to warm up the dialogue. Khrushchev gave each of the grandchildren a small red pin, which he personally pinned on her blouse. However, despite the significance of the buttons, her mother hurriedly threw them away after the meeting.

“They would have been historically important,” Eisenhower reminisced, but those were the times of great fear of Russia, she continued.

Eisenhower than quickly turned to her grandfather’s legacy, suggesting his “Atoms for Peace” speech to the United Nations General Assembly on Dec. 8, 1953 was “revolutionary” in terms of both economics and national security. She noted the clear strategic intent of the speech, which she termed “a vision, not a blueprint.”

She reminded the audience how the speech called for establishment of an international atomic energy agency that would protect fissionable materials and help find peaceful pursuits for them. Now, Eisenhower expanded, we need a “new contemporary vision [articulated] at the

highest level of the U.S. government.”

A historian and writer by training and a student of her grandfather’s writing, she remarked on her grandfather’s excellent writing skills and how she was certain that he personally wrote much of the speech.

To prove her point, Eisenhower told of how the president on that Dec. 8 asked the pilot to circle New York City for about one hour before landing so he could rework the speech in the air to make it fit his objectives. Then she entertained the audience with the story of how Eisenhower proceeded to enlist Lewis Strauss, head of the Atomic Energy Commission, in making copies and collating the revised speech.

Out of the speech and the president’s close association with scientist Isidore Rabi came three International Atoms for Peace Conferences — in 1958 (attended by principal U.S. delegate Ernest O. Lawrence, plus former Director Harold Brown and other LLNL scientists and engineers), 1964 and 1971. Susan Eisenhower also related how her grandfather called on Secretary of State John Foster Dulles to contact U.N. leader Dag Hammarskjold to get an array of international scientists to participate in the first conference.

Eisenhower, who is married to a former Russian physicist who worked in the Soviet space program, pointed out her grandfather’s respect for scientists and his desire to use the scientific community as the means to engage the Russians in his initiative to cooperate in the future uses of atomic energy, both civilian and security. Later in the

two-day conference, she related that her grandfather once said that scientists are the only ones who put the good of their country before their own personal ambitions.

In the second part of her keynote on the history of the Atoms for Peace address, Eisenhower called on the audience and those in the national security community to end “stovepiping” of information and progress in atomic energy internationally. “The genie is already out of the bottle,” she stressed, arguing for the synergy between national security and civilian uses that should be shared. Already atomic energy has “saved thousands of lives,” she emphasized.

She continued her discussion, noting the many problems that foreign scientists have today acquiring visas because of a clampdown on possible terrorists entering the country. “The United States wants to have a foreign policy without foreigners,” she stressed, while calling again for more U.S. partnering with the international community.

Eisenhower is best known for her work with Russia and the former Soviet Union. She is a member of the National Academy of Sciences’ standing committee on International Security and Arms Control for a third term. In 2000, the Secretary of Energy appointed Eisenhower to a task force to evaluate U.S.-funded nuclear nonproliferation programs in Russia.

Eisenhower is the author of three books, and has written extensively on foreign policy for an array of large newspapers. She has also provided analysis for many national television news programs.

LONGSWORTH

Continued from page 1

speech 50 years ago that served as the inspiration for the conference.

Longworth asked panelists to address the “fearful atomic dilemma — to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life.”

Noting that much of the discussion in the two-day symposium, “Atoms for Peace After 50 Years: The New Challenges and Opportunities,” had focused on the “supply side” of nuclear weapons, he asked panelists to speak to the question of how “demand” for nuclear weapons might be reduced.

Panelists V.S. Arunachalam, Carnegie Melon University; Philip Bobbitt, international law specialist from the University of Texas; former Los Alamos Director John Browne; J.D. Crouch, Southwest Missouri University; John Holdren, Harvard University; and Susan Eisenhower gamely took up the challenge.

After the symposium, Longworth acknowledged his question was intended to provoke discussion. “There are, of course, no clear answers to these questions.”

But he said the value of the workshops, conferences and symposia is in the candor of the discussion, which “helps define important issues.”

“The whole idea of the conference is a useful framework to discuss where we need to go in the future,” Longworth said. “This is very useful for the most senior policy makers — it’s on the Nuclear Regulatory Commission’s radar screen — and the secretary of Energy is very engaged precisely because this is such a useful framework.

“This is of great value to NNSA and DOE. It’s a non-threatening environment,” he added. “Livermore is a great place to have a workshop like this because the Lab can draw together a wide variety of views under the umbrella of academic discussion. It’s harder for government to do that.”

The symposium, the culmination of a series of workshops and a conference earlier this year in Livermore, Japan, France and Washington D.C., brought together experts in defense, civilian nuclear energy, science and policy from around the world. Participants examined issues of defense, deterrence, nonproliferation, civilian nuclear applications and cross-cutting issues of materials, governance and public confidence.

Preliminary reports from the subgroups working on the project’s component issues were rolled out in September and provided discussion material for last week’s symposium, which drew about 150 participants representing seven countries. The first day of the symposium was largely dedicated to a historical retrospective on President

Eisenhower’s “Atoms for Peace” speech to the United Nations in December 1953 and began with Susan Eisenhower’s keynote address (*see accompanying article*).

“The response to the project has been tremendous,” said Eileen Vergino, deputy director of the Center for Global Security Research, which sponsored the project. “Like similar preceding projects it raised more questions than answers. But this is really about opening a dialogue between disparate communities that don’t normally communicate.”

The technical community came away with a better understanding of security and policy issues, while the policy community became more aware of technical challenges and opportunities.

CGSR Director Ron Lehman presided over the symposium. Also contributing to this year’s CGSR futures project were: former Director Mike May; John Taylor of the Electric Power Research Institute; Bill Schneider of the Defense Science board; Bob Schock, who organized the project; Carl Poppe; Tom Isaacs; Mort Mendelsohn; Craig Smith; Jor-Shan Choi and Dana Christensen.

A final report of this year’s “Atoms for Peace” project is to be released in Washington D.C. Dec. 8, the anniversary date of President Eisenhower’s speech. The report will be available from the CGSR Website: <http://cgsr.llnl.gov/>

SCIENCE

Continued from page 1

tering bioterrorist agents are improving, the three researchers say, and are approaching the sophistication of technologies for fighting chemical warfare agents.

Even so, improvements are still needed for chemical sensors to meet health-effect-level sensitivities for protecting civilians and reducing high false-alarm rates, the authors write.

Marked advances have been made during the past two decades in biological detection, where there has been a combined 1,000-fold improvement in sensitivity and specificity, Fitch said. (Sensitivity refers to needing smaller amounts of material for detection, whereas specificity involves making the identification without false alarms).

One biological detection device described in the paper is the Biological Aerosol Sentry and Information System (BASIS), an environmental monitoring system used at the 2002 Winter Olympics.

Developed by Lawrence Livermore and Los Alamos researchers, BASIS relies on a network of sampling stations to collect aerosol samples, which are then transported to a central laboratory and analyzed for selected pathogens.

Since its first deployment in 2001, BASIS has performed about 400,000 diagnostic tests of complex environmental samples, with no false alarms. BASIS uses a two-stage test, first screening a single specific sequence of DNA and later checking four or more additional DNA sequences. This is analogous to looking for a single matching curve in a fingerprint as a first test. Whenever an initial match is found,

additional curves from other parts of the fingerprint are used to increase the accuracy of the test.

In addition to its deployment at the Salt Lake City Winter Olympics, BASIS has been used in New York City (for the first anniversary of September 11) and in Albuquerque, N.M., among other sites.

“The real test of a biological detection system is when you have a small amount of a pathogen, you don’t have much time to do the test and there’s a downside to saying it’s there when it’s not there,” Fitch said. “Any system that gets it wrong for a major event won’t be used again.”

Among the reasons cited by Fitch for the substantial improvement in biological detection are the ability to rapidly analyze DNA via the polymerase chain reaction (PCR) technology, the development of very specific DNA signatures for pathogens and the ability to do many tests and controls simultaneously.

In their review paper, Fitch, Raber and Imbro note that medical interventions are most effective when implemented soon after exposure and before the onset of symptoms.

During the inhalational anthrax events in 2001 in the United States, no known deaths occurred among the approximately 10,000 potentially exposed individuals who received pre-symptomatic treatment, whereas five deaths resulted among those who received post-symptomatic medical attention.

In the *Science* paper, the three Laboratory scientists describe a decision-making framework of four phases for guiding actions following a terrorist attack, which was developed by Raber and others in a 2002 paper on risk analysis.

The four phases identified are: notification, first-responder, characterization and restoration (or decontami-

nation and remediation).

In the restoration phase, final acceptable levels of cleanup for buildings must be determined, as well as cost-benefit analyses of the cleanup.

For the anthrax exposures in the Hart Senate Office Building and the Washington D.C. Brentwood Post Office, decontamination was continued until no anthrax growth could be found in swab tests to ensure health risks to building occupants were minimized.

In the view of the three authors, specific cleanup standards for agent decontamination of buildings have been lacking or controversial.

Researchers at three national laboratories — Sandia, Lawrence Livermore and Los Alamos — have or are developing various environmentally acceptable decontamination technologies.

The Livermore decontamination agent, known as L-gel, has been effective in a series of chemical and biological agent tests on a variety of substrates. The Sandia formulation, tentatively called Decon Foam 100, is available through two commercial companies.

Another promising decontamination technology has been developed by a British company, according to the authors.

Although these technologies are effective for surface decontamination, additional work is needed for building decontamination where gaseous decontaminants are typically required. The huge infrastructure requirements currently necessary for effective decontamination continue to impose long-time delays and have potential for major economic impact.

Birds of a feather flock to local sites for the winter

Winter seems like a bad time to watch birds – after all, birds are often scarce in the colder states because they have flown south to winter in warmer places. However, just like many people, numerous birds consider California a highly desirable place to spend their winter vacations.

Here in the Bay Area, especially in open and natural areas such as Mount Diablo, Del Valle Reservoir and our very own Site 300, we are graced with the presence of several interesting winter migrants that arrive from the Arctic, Canada and the Northern and Midwestern states during late fall. Perhaps most notable among these winter visitors are raptors (birds of prey such as hawks, owls and eagles).

California boasts one of the highest numbers and types of wintering raptors in North America, trumped only by Texas and Florida. Among the raptors that visit the Tri-Valley region only during the winter are ferruginous hawks (*Buteo regalis*) and rough-legged hawks (*Buteo lagopus*). Both species inhabit grassland habitats; undoubtedly, this is why they are attracted to Livermore and Site 300.

Rough-legged hawks are so named because their feathered legs make them look like they're wearing legwarmers. The closely related ferruginous hawks share this unusual feature, which is an adaptation to living in cold climates. Most other raptors, and in fact most birds, have bare lower legs, with feathers only on their thighs. Both ferruginous and rough-legged hawks are generally streaky, with a mix of cinnamon brown to dark brown and white feathers. These hawks are quite large, with wingspans of 4-5 feet and sleek bodies that are nearly 2 feet long. Hawks are skillful hunters and seek out and eat small mammals like mice, voles, rats, ground squirrels and sometimes even feast on small birds or rabbits found in our rolling grasslands. Their regally hooked beaks and heavy talons give them all the hunting tools required beyond their strong wings and sharp eyesight.

The ferruginous hawk is quite a committed bird, as it forms long-lasting monogamous relationships. One pair nested together for 28 years, raising 66 ferruginous hawk fledglings during 19 of those years. Ferruginous hawks breed as far away as Canada, and winter in the Western states and in Mexico.

On the other hand, rough-legged hawks



By Jennifer Garrison

are quite the worldly travelers, breeding even farther afield in Alaska, the Canadian Arctic and northern Eurasia. Like many young travelers, rough-legged hawks often meet their mates while on their winter holidays. If you are lucky, you may witness a male

rough-legged hawk performing a soaring sky dance as he tries to court his favorite feathery female. He closes his wings, swoops down and climbs back up, stalls, and then swoops down again to repeat his hopeful dance. While rough-legged hawks do pair up monogamously to raise young, it seems this commitment may not last past that season. So goes the fickle nature of young love.

Many other raptors have made California and our LLNL sites their permanent home. A unique raptor here on the main campus is the white-tailed kite. You may spot the kites and their young in nests at the top of large trees on the northern edge of campus during the summer months. This winter, take a moment to look to the skies and you may spot golden eagles, turkey vultures, red-tailed hawks, Cooper's hawks, American kestrels and even perhaps a bald eagle.



During the winter months, Site 300 bird watchers may spy several interesting migrants, including the adult kite (top right) and kite babies (above). The ferruginous hawk (center) and the rough-legged hawk (right) can be detected by their mix of light and dark brown and white feathers. These hawks have a large wingspan of 4-5 feet, as displayed by Lab biologist Michael van Hattem.

Photos by Michael van Hattem and Pete Bloom

REVIEW

Continued from page 1

“Over the past couple of years we have implemented a number of institutional initiatives intended to enhance recruitment and retention, and to foster the overall health of the work environment,” Anastasio said. “Last year, workforce reviews were conducted to look at the strategies being used, and management practices at the directorate level. These discussions were very important, and I plan to continue them as an integral part of our management system. I also continue to believe they are an important part of how we ensure our accountability as leaders.”

The next round of reviews will begin in December and will continue through January. As with last year’s reviews, each session will be comprised of a three-hour directorate presentation and a one-hour executive session.

The workforce reviews will focus on

a broad range of topics, including:

- Implementation of the Integrated Performance and Pay Program, including performance management, ranking, target setting, salary management, supervisory training and employee communications.
- How each directorate is ensuring, at all levels, leadership development and succession planning for the future.
- Directorate actions and plans for ensuring overall workforce capability given hiring limitations and any other constraints.

Anastasio also will seek more focused discussion on the status of the Lab’s critical skills population, including perceived issues and strategies for addressing them. “Attention to workforce capability with regard to critical skills is imperative in our ongoing ability to meet programmatic missions in the area of stockpile stewardship,” Anastasio said.

Guidelines for workforce reviews have been sent to all directorate offices.



Newsline
UC-LLNL
PO Box 808, L-797
Livermore, CA 94551-0808